

**EXAMINATION OF THE DOVER FIRE & RESCUE SERVICE**

**FLOATER PROGRAM**

Executive Development

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## **ABSTRACT**

The Dover Fire & Rescue Service implemented an employee floater program to reduce overtime costs. The problem is that since its inception no comprehensive analysis of the program has been completed. The purpose of this paper was to examine the floater program to determine its cost-effectiveness, scheduling efficiency and expansion possibilities.

The project employed evaluative research to answer the following three questions: Did the floater program save the city money in fiscal years 1995, 1996 and 1997? Is there an optimum schedule which will cover the maximum number of vacancies? Would the addition of one or more floaters save the City additional money?

The research procedure employed was to evaluate personnel costs and suppression vacancies using the City of Dover's payroll records, the Dover Fire & Rescue Service's administrative records and other city records. The information was used to compare the floater program's actual costs with costs had overtime money been used to fill vacancies. The information was also used to compile data in table form to compare the current floater schedule with the most recent three year history of vacancies. This was done to evaluate the total number of vacancies covered by the floaters and to explore the potential for expansion of the floater program.

The major finding of this study was that the Dover Fire & Rescue Service's floater program is not currently cost-effective. While a refinement in the scheduling of floaters would increase the amount of vacancies covered, the additional coverage would not be sufficient to make the

program cost-effective. Since the use of floaters is not cost-effective, adding an additional floater would further decrease the cost effectiveness of the program.

The recommendation from this research is that the Dover Fire & Rescue Service should develop a plan to eliminate the floater program. Until that can be done, the department should implement a floater schedule which will cover the greatest potential vacancies.

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## INTRODUCTION

The Dover Fire & Rescue Service established a program to reduce personnel costs by reducing overtime. In December 1990, the department implemented a program where two firefighters worked a floating schedule independent of the fixed schedule worked by other fire suppression personnel. The basic idea was to cover suppression vacancies using personnel working at a rate of straight time as opposed to covering vacancies using a rate of time-and-a-half. The problem is that while an evaluation of the floater program for cost-effectiveness was done during the initial implementation of the program, no formal in-depth evaluation of the program has been completed since. To document the effectiveness of the program, a comprehensive evaluation of the program was needed.

The purpose of this research project was to conduct a comprehensive analysis of the floater program to determine the cost-effectiveness of the program, the efficiency of the current floater schedule in filling vacancies and the feasibility of expanding the program to save additional overtime money.

The project employed evaluative research to answer the following three questions:

1. Has the floater program saved the City of Dover money in fiscal years 1995, 1996 and 1997?
2. Is there an optimum schedule for the floaters which will cover the maximum number of suppression vacancies?
3. If the answer to question one is yes, would the addition of one or more floaters save the City additional money?

## **BACKGROUND AND SIGNIFICANCE**

In December of 1990, the City of Dover Fire & Rescue Service implemented a program aimed at reducing overtime costs. At that time, the department's overtime budget was decreasing while at the same time the number of suppression vacancies were increasing. With the increased number of suppression vacancies and the increases in personnel related costs, the City of Dover faced a situation which resulted in the periodic closing of a fire station in the south end of the city. As such, the administration transferred two firefighters from a fixed eight-week work schedule, consisting of two ten-hour days followed by two fourteen-hour nights, to a fluctuating schedule where they floated to fill vacancies.

Before implementation of the floater program, the department operated four rotating platoons; two with a staffing of 10 and two with a staffing of 9. With a minimum established staffing of 9 suppression personnel per shift, all vacancies which reduce the staffing below 9 were filled by department personnel using overtime money. Overtime is paid at a rate of time-and-a-half for every hour worked outside of a normal shift rotation (Collective Bargaining Agreement, 1993). While the floater program reduced the two 10 person shifts to 9, it freed two firefighters to fill vacancies at straight time. Firefighters assigned to float received their weekly schedule a week in advance to maximize their effectiveness.

The net effect of the implementation of this program was reported in the Dover, New Hampshire Annual Report 1991-1992 (1992) which reported:

This program continues to be extremely beneficial financially, as we were able to keep the South End Fire Station open more often. The following represents the savings acquainted with this program:

| Vacancies Covered |       |       | Net*     | Overtime |
|-------------------|-------|-------|----------|----------|
| Day               | Night | Total | Savings  | Savings  |
| 92                | 83    | 175   | \$13,179 | \$45,535 |

\*The net savings represents the actual overall savings to the city after subtracting the floaters actual salaries.

This fiscal year proved to be an extremely difficult one due to budget cuts which reduced the ability to hire back personnel to cover vacancies. The intermittent reduction in manpower forced the closure of the South End Fire Station 15 times.

The floater program allowed the South End Fire Station to remain open an additional 234 shifts. (p. 29)

The floater program has remained in effect since December 1990, with the only major modification being floaters now work a fixed two-week schedule, though still independent of the four platoons. Does the floater program still prove cost effective as reported in the Annual Report? Is the current schedule designed to cover the maximum number of anticipated vacancies? Would the addition of another floater further reduce overtime cost? This study attempts to answer these questions to document prudent expenditures of taxpayers funds. As stated by Gratz (1972):

Seldom has the budget been subjected to an appraisal in order to evaluate the worth of *existing* programs or expenditures. The budgetary process accepts the fact that if

an operating expenditure was justified last year, it must be necessary again this year.

This may or may not be true. (p.87)

This research project addresses the issue of Organizational Change and Development, Unit 9 of instruction in the Executive Development course at the National Fire Academy.

## **LITERATURE REVIEW**

The literature review for this project involved the examination of material written on the subjects of financial and personnel management and budgetary and accounting evaluation terminology and procedures. While it was the goal of the literature review to find an established financial evaluation model to use for evaluating the floater program, no actual model was found.

Much information however has been written regarding the responsibility and accountability of fire service leaders in their role as financial and personnel managers. Failure of the fire chief and his staff to be proficient in these areas can have a devastating effect on the organization. Improper handling of financial and personnel matters can result in fines against the community, bad publicity, poor morale and, in general, a deterioration of the department (Johnson, 1995). In addition, mismanagement of resources can also have a negative effect on the manner in which the fire chief is perceived by community leaders and the public in general (Wren, 1995).

One tool available to fire chiefs to help them to be a proficient financial and personnel manager is the budget. "Because budgets are such important management tools, every fire officer should understand the purpose they serve and the basis for formulating them" ("Management in the Fire Service," 1988, p. 302). Management uses the budget as a forecast for determining who or what is to receive a particular amount of money, and for what purpose.

“After the budget is prepared, the actual performance of the department should be compared to the estimated performance and the differences noted and analyzed” (Simini, 1984, p. 84). In other words, to be an effective manager, fire service leaders must be prepared for and capable of evaluating changing circumstances. These changing circumstances may have a positive or negative effect on personnel and financial outcomes.

In practice, periodic analysis of the budget becomes one of the most important control devices available to the fire department manager. This periodic analysis... provides the manager with protection against waste, losses and inefficient current operating costs that can be accurately compared with past performance, and helping in determining probable costs in the future. (Gratz, p. 80)

To assist management in this endeavor, many large organizations have a separate department staffed to advise the fire chief in these matters. However, in small and medium size departments, the fire chief may have little to no staff to assist him (“Management in the Fire Service,” 1988). In such a case, the fire chief must be capable of performing an evaluation to determine the effectiveness of programs under his control (Johnson, 1995).

Ideally, any evaluation will be more than an audit; it will lead directly to an action plan (“Managing Fire Services,” 1988 p. 102). However, to effectively evaluate the cost-effectiveness of the floater program, an operational audit of the program was required. “An operational audit is a review of the operating procedures and methods, and an evaluation of efficiency and effectiveness” (Wren, 1995, p.134). This audit is performed using basic accounting research procedures. Accounting has been called the language of business and is

used to make many important business decisions (Pyle, Larson, Hermanson, 1981). Therefore, in order for a fire service leader to make good decisions on important matters, familiarity with accounting procedures and terms is necessary.

Michael T. Wren (1995) states, ...“cost-benefit analysis isn’t an exact science; when undertaken by executives unpracticed in its execution, overly optimistic benefits and underestimated costs are common” (p. 57). Therefore, to perform an effective and accurate audit of the floater program, literature addressing budgetary and accounting terminology and procedures was explored.

“Decision making consists of several stages, including recognition of the problem, identification of the alternatives, evaluation of the alternatives, and the decision itself. Financial accounting information is especially useful in the evaluation stage of the decision making process” (Nikolai, Bazley, 1986, p. 833). Therefore, it could be said that good financial accounting information leads to good decisions.

The type of budget used by an organization can, in itself, provide a significant amount of information pertaining to a program, however, not all budget types do so. The City of Dover uses a Line-Item Budget. According to Gratz (1972):

This type of budget is primarily a detailed system of accounting which identifies the sums to be expended for specific items (i.e., personnel), or what is sometimes referred to as objects of expenditure. Its most obvious shortcoming lies in the fact that it does not permit a true analysis of whether funds were expended in the most useful manner.

Lumping all personnel costs together does not permit a true evaluation of personnel's accomplishments. (p. 71)

Therefore, to evaluate the effectiveness of the floater program, actual payroll and detailed account expenditure records were needed. One of the largest expenses that most businesses incur on a regular, ongoing basis is payroll. "Payroll represents the compensation that is regularly paid to the employees of a business organization" (Eisen, 1985, p. 321). Although the worker tends to think in terms of his or her payroll check at the end of the pay period, there is much more to payroll than just take-home pay. Detailed payroll records, containing the total cumulative earnings package can be analyzed by reviewing a record called the payroll register ( Nikolai, Bazley, 1986).

Costs incurred by an employer that is above and beyond the employees hourly salary are known as non-payroll labor costs. The total cost of labor to an employer is not the total of the gross pay earned by employees during a period. Rather, it is the total of the gross pay earned during a period along with all other costs the employer pays (Simini, 1988). Such other costs include health benefits, unemployment taxes, job performance incentives, clothing and uniforms, etc. These non-labor costs, sometimes referred to as fringe benefits, become an important factor when evaluating the cost effectiveness of the floater program. "In some studies, fringe benefits have proved to be as high as or higher than one-third of the employee's gross pay" (Eisen, 1985, p. 101). These non-labor costs can often be determined by examining the payroll register.

In summary, the literature reviewed focused on the role of fire service leaders as evaluators in financial and personnel management issues. Fire service leaders must be actively involved in these issues if they are to be effective leaders. While no specific model for evaluating the floater program could be found, the literature reviewed was the basis for the understanding of general accounting practices and terminology. This information, along with the emphasis on calculating fringe benefits, provided the basis for determining the total cost of the employees used as floaters.

## **PROCEDURES**

The research procedure used in preparing this paper consisted of researching City of Dover Annual Reports, memorandums, and correspondence from 1990 to 1996. The purpose of the research was to determine if a comprehensive evaluation of the floater program had been completed. Finding none, research was initiated to evaluate the floater program's cost-effectiveness for fiscal years 1994/95, 1995/96 and 196/97. There were six steps to the process.

### **Step 1**

The first step necessary was to determine which employees were used as floaters. To accomplish this, City of Dover Fire & Rescue Service Personnel Action Forms were examined to determine employee hired dates and General Orders were examined to determine floater assignment dates. A history of firefighters who served as floaters during this period of evaluation and the duration of their assignment were established. Some 10 Fire & Rescue

employees served as floaters, at various times, during this three- year period. A maximum of two firefighters served as floaters at any given time.

## Step 2

The information obtained in Step 1 was used to determine which payroll and budget records to research and tabulate. City of Dover payroll register and budget expenditure records were researched to determine actual costs of firefighters used as floaters. Using the information from the payroll register, all costs incurred by the city for employing the floaters was obtained. These costs included: hourly salary, educational and incentive pay, holiday pay, the city's portion of FICA, health care, retirement and Medicare taxes. In an interview with Terry Gettelman, Senior Accountant for the City of Dover, (T. Gettelman, personal interview, October 9, 1997) he stated that the City of Dover is self-insured for the purposes of workers' compensation. The addition or deletion of a floater would have "nil effect" on the department's share of workers' compensation. Clothing and uniform costs were obtained by examining the Detailed Expenditure Record of those accounts for the three year period.

## Step 3

After determining the total cost of each floater, the next step was to determine the cost the city would have incurred had the vacancies been filled using overtime. To accomplish this task, two questions needed to be answered. First, what was the average overtime rate of the 28 remaining firefighters? All suppression firefighters are required to work overtime on a rotating basis. Determining the average overtime cost would provide a realistic picture of actual costs had overtime been used.

The average overtime rate for suppression firefighters was obtained using the 26th payroll register from each of the three fiscal years. City of Dover employees are paid weekly, 52 times a year, so the 26th payroll provided the middle of the year salary rates. Included in the overtime rate was the firefighter's rate at time-and-a-half and the city's portion of FICA, retirement and Medicare.

The second question to answer was, how many total hours was a floater used to cover suppression vacancies in each of the three years? Determining how many hours a floater was used to cover a vacancy was done by examining the Dover Fire & Rescue Service's Payroll Personnel Coverage Sheets for the three-year period and tabulating the results. In effect, the Payroll Personnel Coverage Sheet is a form used to document each suppression vacancy. Information included on the form is the date, duration of the vacancy and the person used to cover the vacancy. The person used to cover a vacancy could be either a floater or a person working overtime. In either case, the method of coverage is documented on the Payroll Personnel Coverage Sheets. Also contained on this form is documentation of anytime a floater working, even though no vacancy has occurred.

#### Step 4

When all the information was tabulated, a comparison was done. Multiplying the total number of hours the floaters actually covered by the average overtime rate gave a cost figure had overtime money been used to fill those vacancies. This was compared to the actual money it cost the city to employ the two floaters. From this figure, a determination was reached

whether the floater program was cost-effective or not. This procedure was repeated for each of the three fiscal years of the study.

#### Step 5

The information tabulated from the Payroll Personnel Coverage Sheet was then used to tabulate the three-year vacancy history of suppression personnel. Tabulating the day and night shift vacancies by each day of the week, a three-year pattern of activity of vacancies was established. For instance, Sunday - day shift, proved to be the most popular shift to take off (1.75 average vacancies per week), while Thursday - night shift, proved to be the least popular shift to take off (.57 average vacancies per week). This information was used to compare with the current floater's fixed schedule. This comparison revealed the effectiveness of floaters in covering projected vacancies, based on the probability of a vacancy.

#### Step 6

Finding the current fixed floater schedule did not adequately address covering vacancies, based on probability, a new schedule was developed. This new schedule was established based on a 42-hour work week, as outlined in the firefighter's contract with the City of Dover (Collective Bargaining Agreement, 1993). This schedule incorporated coverage based on the eight most popular vacancy periods.

### **LIMITATIONS**

Interested readers will note that sources of information for this research project are considered confidential personnel records. Individuals who may wish to replicate this project would need to be granted access to these confidential records.

## RESULTS

The following results were documented based on the answers to the three research questions.

Question 1. Has the floater program saved the City of Dover money in fiscal years 1995, 1996 and 1997? To determine the cost-effectiveness of the floater program three questions were answered. How many hours did the floaters cover in each of the three years? How much would it have cost to cover those hours using overtime? Finally, how much did the floaters cost?

First, multiply the number of hours the floaters covered in each year by the average firefighter's overtime rate. This will give a cost for how much overtime would have been spent had there been no floaters. Next, compare this figure with the actual cost of the floaters to determine the program's cost-effectiveness. The following three tables gives a breakdown of these figures by fiscal year:

**Table 1. FY1994/95**

|  |             |
|--|-------------|
| Total hours covered by floaters:                   | 2840        |
| Average overtime rate of \$19.37 times 2840 hours: | \$55,010.80 |
| Cost of floaters:                                  | \$54,018.04 |
| Net Savings:                                       | \$992.76    |

Table 2. **FY1995/96**

|  |             |
|--|-------------|
| Total hours covered by floaters:                   | 2490        |
| Average overtime rate of \$20.04 times 2490 hours: | \$49,899.60 |
| Cost of floaters:                                  | \$57,627.48 |
| Net Loss:  | \$7,727.88  |

Table 3. **FY1996/97**

|  |             |
|--|-------------|
| Total hours covered by floaters:                   | 2156        |
| Average overtime rate of \$19.98 times 2156 hours: | \$43,076.88 |
| Cost of floaters:                                  | \$68,698.70 |
| Net Loss:  | \$25,621.82 |

The City of Dover would have saved \$32,356.94 over the past three years had the floater program been eliminated and overtime money used to cover suppression vacancies. Two factors bear greatly on the recent decline in effectiveness of the floater program; total hours of vacancies covered and the cost of benefits paid above the hourly wage.

#### Factor 1

Over the past three years, there has been a steady decline in the number of hours in which a floater covers a vacancy. This is a scheduling issue. The total number of hours worked by the floaters each year has remained consistent, near the 3,000 hour mark. Yet, the number of times a floater was an extra person, not filling a vacancy, increased from 34 hours in FY1994/95 to 840 in FY1996/97. This equates to an increase in overtime coverage costs from \$658.58 in FY1994/95 to \$16,783.20 in FY1996/97.

#### Factor 2

Even if a schedule could be arranged so that all floater coverage's filled a suppression vacancy, the loss in FY 1996/97 would have still been \$8,838.62. Floaters worked a total of 2,996 hours in FY 1996/97. Multiply these available hours by the average overtime rate for

that year, \$19.98, and the cost of overtime would have been \$59,860.08. This figure is much less than the \$68,689.70 it cost to maintain the two floaters.

The success of the floater program hinges on the idea that it is cheaper to fill a vacancy at straight time rather than at time-and-a-half. Yet, the non-labor costs or fringe benefits for the two floaters amounts to \$20,650.70, nearly a third again the hourly salary rate. Adding the non-labor costs into the hourly rate of a floater increase the hourly rate by nearly one-third. This is money that cannot be recouped by filling vacancies and would be more wisely spent as overtime. Research has shown that the floater program is no longer cost-effective.

Question 2. Is there an optimum schedule for the floaters that will cover the maximum number of suppression vacancies? A tabulation of the three-year history of vacancies establishes a consistent pattern of days or nights of the week that prove to be more popular times to take off. Not surprisingly, the weekend shifts are the most popular shifts to take off. The three-year analysis determined the following average number of vacancies for each given shift:

**Table 4. Average Vacancy By Shift Schedule**

| Shift Schedule  | Average Number<br>of Vacancies | Shift Schedule   | Average Number<br>of Vacancies |
|-----------------|--------------------------------|------------------|--------------------------------|
| Sunday day:     | 1.75                           | Tuesday day:     | .86                            |
| Saturday night: | 1.65                           | Monday night:    | .77                            |
| Saturday day:   | 1.62                           | Wednesday day:   | .77                            |
| Friday day:     | 1.26                           | Tuesday night:   | .74                            |
| Sunday night:   | 1.14                           | Friday night:    | .74                            |
| Thursday day:   | .92                            | Wednesday night: | .71                            |

Monday day: .90 Thursday night: .57

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Given the probability of anticipated vacancies, based on the above research, the most proactive and cost-effective use of the floaters would be to create a schedule that covers the most popular shifts creating vacancies. While there is no guarantee there will be a vacancy on any given day or night shift, the current floater schedule only marginally attempts to address the probability of a vacancy. The following two tables lists a schedule for each of the two floaters which will most effectively use the floaters, based on probability of a vacancy:

**Table 5. Floater 1 Work Schedule**

---

|        |              |              |                |                  |
|--------|--------------|--------------|----------------|------------------|
| Week 1 | Sunday - day | Monday - day | Friday - night | Saturday - night |
|--------|--------------|--------------|----------------|------------------|

|        |                |                |               |  |
|--------|----------------|----------------|---------------|--|
| Week 2 | Sunday - night | Thursday - day | Saturday -day |  |
|--------|----------------|----------------|---------------|--|

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Note. Floater 1 would work this schedule on a rotating basis. Every fourth week,

Floater 1 would work an 8-hour shift on Tuesday - day to keep within the contractual requirements of a 42-hour average work week (Collective Bargaining Agreement, 1993).

**Table 6. Floater 2 Work Schedule**

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|        |                |                |               |  |
|--------|----------------|----------------|---------------|--|
| Week 1 | Sunday - night | Thursday - day | Saturday -day |  |
|--------|----------------|----------------|---------------|--|

|        |              |              |                |                  |
|--------|--------------|--------------|----------------|------------------|
| Week 2 | Sunday - day | Monday - day | Friday - night | Saturday - night |
|--------|--------------|--------------|----------------|------------------|

---

Note. Floater 2 would work this schedule on a rotating basis. Every fourth week,

Floater 2 would work an 8-hour shift on Tuesday - day to keep within the contractual requirements of a 42-hour average work week (Collective Bargaining Agreement, 1993).

Question 3. If the answer to question one is yes, would the addition of one or more floaters save the City additional money? The use of floaters to cover vacancies are no longer

cost-effective. To use additional money earmarked for overtime to fund a new floater position would be a wasteful expenditure of taxpayer money.

## **DISCUSSION**

The floater program, as reported in the City of Dover Annual Report 1991/1992, was, at one time, used to effectively reduce overtime costs. This resulted in savings sufficient to keep the South End Fire Station open for the greater part of the time. Since that time, the hourly salary of Dover's firefighters has not changed significantly (Collective Bargaining Agreement, 1993). However, non-labor costs have risen steadily. These non-labor costs have risen to the point where a floater simply cannot cover enough vacancy hours to justify the expense of these additional costs.

The findings of a study cited in the literature review stated that non-labor costs can run as high as a third or more of actual salary cost (Simini, 1988). This proved to be true in the case of Dover's firefighters. The need to fully examine all related costs associated with funding a position must be done in order to get an accurate picture of total position cost (Managing Fire Services, 1988). If non-labor costs had not been fully researched and properly calculated, then a false conclusion would have been reached as to the effectiveness of the floater program.

The significant finding of this research project is that the floater program cost the city of Dover more than \$25,000 in fiscal 1996/97. That represents more than 21% of the budgeted \$118,000 for suppression overtime (Dover Fire & Rescue Operating Budget, 1996). While there are obvious benefits of having additional personnel on shift above the established minimum of nine, it is beyond the scope of this research project to attempt to argue for or against the

additional staffing. The need to weigh the benefits of having an occasional extra person on shift versus the saving of a considerable amount of money should be completed as soon as possible.

Fire service leaders are charged with using the resources allocated to them in the most effective manner. Personnel costs account for upwards of 90% of total operating budgets of many fire departments ("Fire Protection Handbook", 1991). It is therefore incumbent on all fire service leaders to be actively involved in evaluating their financial resources to ensure their maximum efficient use. "Financial management does not end when the budget is passed... Many agencies also have a formal review of program performance at the six-month point in a budget year" (Wren, 1995, p.138). This evaluation allows time to make adjustments for the next six months, perhaps turning a program around.

## **RECOMMENDATIONS**

Although this research project gives proof of the ineffectiveness of the floater program in saving money, elimination of the two floaters by layoff would not be a recommended course of action. The negative effect this move would have on the morale of the remaining department employees and the negative effect it would have on the two individuals and their families must be considered. In addition, the cost of unemployment benefits paid by the City for the two employees would nullify any savings. The cost to the city for a layoff is 49% of the persons total wages. These include non-labor wages such as overtime, holiday pay and incentives ("Unemployment Compensation - Your Rights And Obligations, 1989). Therefore, the cost to cover vacancies with overtime, as well as pay unemployment wages, would be well over the \$68,698.70 cost for the floaters.

As such, for now, it is recommended that the floaters remain in place but change the floater schedule. A change in scheduling for the two floaters would increase the probability of them covering more vacancies. This would be a short term solution with the goal of eliminating the two floater positions. In the mean time, the scheduling change would increase the probability of keeping the City's financial losses to a minimum.

It is recommended that the eventual goal be to eliminate the two floaters through attrition and direct the balance of the money needed to cover vacancies to the overtime account. Money saved by the elimination of the floater program could be used to fund other necessary expenditures or to lower the tax rate.

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